August 29, 2001

17. (Amended) A detector array according to [any one of the claims 14 to 16] claim 14, wherein the detector elements are arranged in a plurality of rows.

19. (Amended) A detector array according to [claim 17 or] claim 18, wherein the detector elements in each row are offset relative to those in a next adjacent row.

20. (Amended) A detector array according to [any one of claims 14 to 19] claim 14, wherein the detector elements are arranged such that the center of each element is located at a position corresponding to a point on a regular grid.

22. (Amended) A detector array according to claim 20 [or claim 21], wherein the spacing between the centers of the elements in each row corresponds to a multiple of the spacing of the points of the grid.

23. (Amended) A detector array according to claim 19 [or claim 20], wherein the offset in detector element position in adjacent rows corresponds to the spacing of the grid or a multiple of that spacing.

24. (Amended) A detector array according to [any one of claims 20 to 23] claim 20, wherein the dimensions of each detector element are substantially equal to the spacing of the points of the grid.

27. (Amended) A detector assembly according to claim 25 [or claim 26], wherein said array comprises an array according to [any one of claims 14 to 24] claim 14.

28. (Amended) A microscope according to [any one of claims 1 to 10] claim 1 including an assembly which can be moved into or out of the beam of radiation in order to change the magnification provided by the optical elements of the microscope.

30. (Amended) A microscope according to claim 28 [or claim 29], wherein the magnifying assembly includes a reflecting element which in its operative position reflects the beam of radiation away from its normal direction of propagation and a magnifying component or components which can receive the reflected radiation.

33. (Amended) A microscope according to claim 31 [or claim 32], wherein the first and second reflecting elements are plane mirrors.

34. (Amended) A microscope according to [any one of claims 28 to 33] claim 28, wherein the magnifying assembly is movable between an operative and an inoperative condition by rotation about an axis.

35. (Amended) A microscope according to [any one of claims 30 to 34] claim 30, wherein the assembly is movable between an operative position in which the reflecting element is located in the beam of radiation and an inoperative position in which the radiation can propagate to the detector elements without magnification by

the magnifying assembly by rotation about an axis through the first and second components.

36. (Amended) A microscope according to claim 34 [or claim 35], wherein the angle of rotation though which the assembly can be rotated is of the order of 90°.

37. (Amended) A microscope according to [any one of claims 28 to 36] claim 28 including a shield for shielding the detector from unwanted radiation, said shield being switchable between an operative and an inoperative position.

38. (Amended) A microscope according to claim 37 when dependent upon [any one or claims 31 to 36] claim 31, wherein the shield comprises an element disposed along the propagation path of radiation reflected from the first magnifying component to the second magnifying component, said element having therein an aperture and acting as a cold shield to prevent unrequired radiation arriving at the detector.

In the Abstract

An infrared imaging microscope, particularly of the type used to carry out FT-IR measurement, has a detector in the form of a small detector array [(85)] of individual detector elements [(86)]. The outputs of the detector elements [(86)] are fed in parallel to processing means which process the output signals. The use of a small array means that the outputs can be processed without the need for complex multiplexing or perhaps no multiplexing at all thus avoiding the reduction in signal to noise ratio which is associated with large scale multiplexing. The small detector array will generally have between 3 and 100 detector elements. Typically the upper limit will be 64 and a preferred arrangement has 16 detector elements.

Respectfully submitted,

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Clean Copy of Claims:

3. (Amended) A microscope according to claim 1, wherein the detector elements are arranged in a linear array.

5. (Amended) A microscope according to claim 1, wherein the detector elements are arranged in a plurality of rows.

7. (Amended) A microscope according to claim 5, wherein the detector elements in each row are offset relative to those in a next adjacent row.

8. (Amended) A microscope according to claim 1, wherein the center of each element is located at a position corresponding to a point on a regular grid.

10. (Amended) A microscope according to claim 8, wherein the spacing between the centers of elements in each row corresponds to a multiple of the spacing of the points on the grid.

11. (Amended) A microscope according to claim 1, wherein the offset in detector element position in adjacent rows corresponds to the spacing of the grid or a multiple of that spacing.

12. (Amended) A microscope according to claim 8, wherein the dimensions of each detector element are substantially equal to the spacing of the points on the grid.

13. (Amended) A microscope according to claim 1, including, in addition to said detector array, a single detector element, said processing means being arranged to process output signals received from either said array or said single detector element.

17. (Amended) A detector array according to claim 14, wherein the detector elements are arranged in a plurality of rows.

19. (Amended) A detector array according to claim 17, wherein the detector elements in each row are offset relative to those in a next adjacent row.

20. (Amended) A detector array according to claim 14, wherein the detector elements are arranged such that the center of each element is located at a position corresponding to a point on a regular grid.

22. (Amended) A detector array according to claim 20, wherein the spacing between the centers of the elements in each row corresponds to a multiple of the spacing of the points of the grid.

23. (Amended) A detector array according to claim 19, wherein the offset in detector element position in adjacent rows corresponds to the spacing of the grid or a multiple of that spacing.

24. (Amended) A detector array according to claim 20, wherein the dimensions of each detector element are substantially equal to the spacing of the points of the grid.

27. (Amended) A detector assembly according to claim 25, wherein said array comprises an array according to claim 14.

28. (Amended) A microscope according to claim 1 including an assembly which can be moved into or out of the beam of radiation in order to change the magnification provided by the optical elements of the microscope.

30. (Amended) A microscope according to claim 28, wherein the magnifying assembly includes a reflecting element which in its operative position reflects the beam of radiation away from its normal direction of propagation and a magnifying component or components which can receive the reflected radiation.

33. (Amended) A microscope according to claim 31, wherein the first and second reflecting elements are plane mirrors.

34. (Amended) A microscope according to claim 28, wherein the magnifying assembly is movable between an operative and an inoperative condition by rotation about an axis.

35. (Amended) A microscope according to claim 30, wherein the assembly is movable between an operative position in which the reflecting element is located in the beam of radiation and an inoperative position in which the radiation can propagate to the detector elements without magnification by the magnifying assembly by rotation about an axis through the first and second components.

36. (Amended) A microscope according to claim 34, wherein the angle of rotation though which the assembly can be rotated is of the order of 90°.

37. (Amended) A microscope according to claim 28 including a shield for shielding the detector from unwanted radiation, said shield being switchable between an operative and an inoperative position.

38. (Amended) A microscope according to claim 37 when dependent upon claim 31, wherein the shield comprises an element disposed along the propagation path of radiation reflected from the first magnifying component to the second magnifying component, said element having therein an aperture and acting as a cold shield to prevent unrequired radiation arriving at the detector.